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OPEN MEETING AGENDA ITEM

September 18, 2020

Arizona Corporation Commission
1200 W. Washington Street
Phoenix, Arizona 85007

Re: APS's Demand Side Management 2020 Implementation Plan, Docket No. E-01345A-19-0088

Dear Chairman Burns and Commissioners,

The Nature Conservancy appreciates the opportunity to comment on APS's Demand Side Management 2020 Implementation Plan. We write to encourage APS to implement a targeted shade tree program that utilizes the best available data to reduce energy demand in the hottest communities in the Phoenix Metropolitan Area as part of its demand side management portfolio.

Extreme Heat

Extreme heat impacts the health, safety and quality of life of Arizonans. Arizona is one of the fastest warming states¹ and Phoenix is the hottest metropolitan area in the country². By 2060, the number of days over 110°F in Phoenix are projected to more than double from 20 to 47³. The temperatures in Phoenix this summer shattered previous heat records reaching 50 days with temperatures at or above 110°F and 28 nights that never dropped below 90°F⁴, increasing the need to cool indoor environments for prolonged periods. Rising urban heat affects us all, but underserved communities are impacted most. On some days, there are neighborhoods in Phoenix that are only two miles apart and have a 13°F difference in temperature⁵. The hottest neighborhoods in the Phoenix Metropolitan Area, have the lowest tree canopy cover, and the highest child poverty. Heat stress is the leading weather-related cause of death and the highest rates nationally are found in Arizona⁶. In 2019, there were 197 heat-associated deaths in Maricopa County⁷. Between 2006 and 2019, there were nearly 1,500 heat-associated deaths reported in Maricopa County, many of which occurred indoors⁸.

¹ Fastest Warming Cities and States (2019, April). In *Climate Central*. Retrieved from <https://medialibrary.climatecentral.org/resources/earth-day-fastest-warming-cities-and-states-2019>

² Hondula, D. M. (2018, February). An unlikely climate collaboration. In *Smart & Connected Management of Thermal Extremes*. Retrieved from <https://medium.com/smart-connected-management-of-thermal-extremes/an-unlikely-climate-collaboration-4a54665578e5>

³ (2017) Applied Climate Information System. Retrieved from <https://www.rcc-acis.org/>

⁴ Livingston, I. (2020, September 1). Hottest season on record: Merciless Phoenix heat blasts by all-time monthly, summer milestones. In *The Washington Post*. Retrieved from <https://www.washingtonpost.com/weather/2020/09/01/phoenix-hottest-summer/>

⁵ Harlan, S. L., Brazel, A. J., Prashad, L., Stefanov, W. L., & Larsen, L. (2006, September). Neighborhood microclimates and vulnerability to heat stress. *Social Science & Medicine*, 63, 2847-2863. Doi.10.1016/j.socscimed.2006.07.030

⁶ Blanco, H., Comrie, A., Gonzalez, P., Piechota, T., Smyth, R., & Waskom, R. (2014). Southwest, National Climate Assessment. In *U.S. Global Change Research Program*. Retrieved from <https://nca2014.globalchange.gov/report/regions/southwest#menu-report>

⁷ Heat-Associated Deaths in Maricopa County, AZ Final Report (2019). In *Maricopa County Department of Public Health*. Retrieved from <https://www.maricopa.gov/ArchiveCenter/ViewFile/Item/4959>

⁸ Heat Yearly Mortality Reports (2019). In *Maricopa County Department of Public Health*. Retrieved from <https://www.maricopa.gov/Archive.aspx?AMID=103>

Reducing Energy Demand Through Targeted Large-Scale Greening

Planting the right tree, in the right place and watering it with the right water, has the potential to significantly reduce temperatures and the demand for electricity, while providing other important benefits to the community. Trees can reduce temperatures by up to 5.4°F depending on the site and time of day⁹. Planting trees in urban areas reduces the demand for energy use in buildings. Trees planted on the west side of a house can reduce summertime electricity use by 5.2%¹⁰. Annually, a single desert tree can save up to 180 kWh per year in electricity and around 229 kBTU in natural gas¹¹. In addition to their advantages as an energy efficiency measure, urban trees offer a suite of co-benefits including carbon sequestration, improved air quality, increased quality of life, and aesthetic value, among other benefits. We propose that APS implement a strategic shade tree program in the Phoenix Metropolitan Area that targets communities disproportionately impacted by heat utilizing the best available data from academia, non-governmental organizations, and local and county government agencies that are investing in urban heat mitigation and have made this one of their priorities. For example, the City of Phoenix and City of Tempe have committed to achieving 25% tree canopy cover by 2030 and 2040 respectively.

Why This, Why Now?

In Phoenix, lower income and minority populations are more likely to live in hotter, less green neighborhoods⁵. The COVID-19 pandemic is especially challenging for low-income families who may not be able to afford the high cost of air conditioning – a challenge which is compounded this year by the significant scaling back of heat relief locations¹². At a time with unprecedented attention to addressing systemic inequities, the timing is right for an energy efficiency program that provides benefits to underserved communities, who are disproportionately impacted by heat and the economic consequences of the pandemic¹³. Furthermore, the conditions are in place to enable a targeted shade tree program that prioritizes the hottest communities. TNC is working collaboratively with a group of committed institutions including non-governmental organizations, academia, as well as local and county governments who are tackling this issue. There is considerable institutional capacity among these entities, as well as scientific data that can be harnessed to help inform the design and implementation of the proposed shade tree program and address this urgent problem at a scale that makes a difference and in a timeframe that matters.

Thank you for considering our comments. Please let me know if you have any questions or would like to discuss further.

Sincerely,



Patrick Graham
State Director
The Nature Conservancy in Arizona

⁹ McDonald, R., Kroeger, T., Boucher, T., Longzhu, W., & Salem, R. (2016). Planting Healthy Air: A global analysis of the role of urban trees in addressing particulate matter pollution and extreme heat. *The Nature Conservancy*.

¹⁰ Donovan, G. H., & Butry, D. T. (2009, January). The value of shade: Estimating the effect of urban trees on summertime electricity use. *Energy and Buildings*, 41, 662-668. doi:<http://dx.doi.org/10.1016/j.enbuild.2009.01.002>

¹¹ McPherson, G., Simpson, J. R., Peper, P. J., Maco, S. E., Xiao, Q., & Mulrean, E. (2004, July). Desert Southwest Community Tree Guide: Benefits, Costs, and Strategic Planting. In *Arizona State Land Department Natural Resources Division, Urban & Community Forestry Section & Arizona Community Tree Council, Inc.*. Retrieved from https://www.fs.fed.us/psw/publications/mcpherson/psw_2004_mcpherson002.pdf

¹² Stern, R. (2020, May). How the Coronavirus Will Make Phoenix's Heat Problems Worse. In *Phoenix New Times*. Retrieved from <https://www.phoenixnewtimes.com/news/how-the-coronavirus-will-make-phoenix-arizona-heat-problems-worse-11471260>

¹³ Gout, E., & Kelly, C. (2020, June). Extreme Heat During the COVID-19 Pandemic Amplifies Racial and Economic Inequities. In *Energy and the Environment, Center for American Progress*. Retrieved from <https://www.americanprogress.org/issues/green/news/2020/06/29/486959/extreme-heat-covid-19-pandemic-amplifies-racial-economic-inequities/>